

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-4. (Canceled).

5. (Currently amended) A method for manufacturing gas sensor elements each having i) a cylindrical and substantially tumbler-shaped solid-electrolyte body which has a closed-end head portion and, on the side opposite to the head portion, an open-ended base tail portion, ii) an electrode provided on the surface of the solid-electrolyte body and iii) a porous protective layer which covers the surface of the electrode; the method comprising:

forming the electrode on an electrode-forming surface of the solid-electrolyte body;

subsequently measuring radii  $T_1, T_2 \dots$  of the solid-electrolyte body at a plurality of radius measurement positions  $D_1, D_2 \dots$  selected along a peripheral circle C on a protective-layer-forming surface of the solid-electrolyte body inclusive of the electrode while rotating the solid-electrolyte body around its axis extending along the axial direction connecting the base tail portion and the head portion;

spraying a molten protective-layer material on the protective-layer-forming surface by means of a plasma thermal-spraying equipment to form the protective layer;

measuring radii  $U_1, U_2 \dots$  of the solid-electrolyte body inclusive of the protective layer, at points  $E_1, E_2 \dots$  of intersection of normals at the radius measurement positions  $D_1, D_2 \dots$  with the surface of the protective layer; and

determining an average of differences between the radii  $T_1, T_2 \dots$  at the respective radius measurement positions and the radii  $U_1, U_2 \dots$  at the respective intersection points corresponding to the former as the thickness of the protective layer and on the basis of this determined thickness, controlling the amount of spray of the protective-layer material in the plasma thermal-spraying equipment for forming a

~~subsequent protective layer~~ for a subsequent gas sensor electrode to form said subsequent protective layer to a desired thickness.

6. (Original) The manufacturing method according to claim 5, wherein said gas sensor elements are continuously manufactured in a large number, and the amount of spray of said protective-layer material is increased or decreased making reference to the thickness of a protective layer formed directly previously.

7. (Currently amended) The manufacturing method according to claim 5, wherein;

said radius measurement positions D1,D2 . . . are allocated at intervals of 1° to D180 on each solid-electrolyte body, and radii T1,T2 . . . to T180 are measured at the respective radius measurement positions; and

said radius measurement positions E1,E2 . . . are allocated at intervals of 1° to E180 on each solid-electrolyte body, and radii U1,U2 . . . to U180 are measured at the respective radius measurement positions.